European wheat-importing countries are still striving for as much self-sufficiency as possible in wheat. They are expected to harvest as large an area as last year's, if not a little larger, but the crop is expected to be smaller by 100 to 150 million bushels. This will be at least partly balanced, however, by a larger crop anticipated from the great wheat-exporting regions on the Danube.

In Russia the area sown to winter wheat was more than four million acres smaller this year than last, and spring wheat plantings will probably be no larger. But even if the crop increases, as is fairly likely, much of the early surplus normally exported will have to relieve the domestic food shortage.

Science News Letter, June 3, 1933

BOTANY

Ever Eat Gum-Jum? Try It In Soup

CHINESE cookery is credited with using weird things, like birds' nests, sharks' fins and exceedingly ancient eggs; but the Chinese are also capable of dishes incorporating real poetry. Dr. A. B. Stout of the New York Botanical Garden describes in an official publication of that institution the use in China of dried flowers of the day-lily, cut up in soup, which he says gives the dish a distinctive and agreeable flavor.

The Chinese names for this commodity are gum-jum, which means golden needles, and gum-tsoy, meaning golden vegetable. New York's Chinatown imports quantities of these dried lilies, as much as two tons having come into the port in one year.

Science News Letter, June 3, 1933

ORDNANCE

Squeezed Bullets Fired at Mile a Second From New Gun

BULLETS speeding at a mile a second, able at moderate ranges to drive through the tough steel armor plates of tanks, can be fired from a new type of rifle invented by H. Gerlich, an American-born German citizen now resident in England. Because of their potentialities as anti-tank and anti-aircraft weapons, the Gerlich rifle and ammunition are under investigation by the small-arms technicians of the U. S. Army, as well as by several foreign powers.

The Gerlich bullet is something of a paradox. It is of .35 caliber when it goes into the breech of the rifle, and when it comes out of the muzzle it is of only .25 caliber. That means that its diameter has been squeezed down a tenth of an inch as it has travelled through the bore.

This is done by having the bore tapered through a part of its length. The first section forward of the ammunition chamber is cylindrical and of .35 caliber. Then comes a section in which the bore tapers from .35 down to .25 caliber. Finally there is a third section, ending at the muzzle, that is cylindrical and of .25 caliber.

This arrangement enables the bullet to start with a wide area to take the push of the powder gases, and to leave the rifle with a small area, suffering less loss of velocity from air resistance.

To obtain a "compressible" bullet that can be fired from a barrel of this type, Mr. Gerlich fashioned his projectile of .25 caliber, with two flaring bands or flanges of .35 caliber. These fit into the .35-caliber section of the bore, and as the bullet travels down the tapering section they are folded down, fitting into channeled spaces cut into the body of the bullet behind them. The bullet thus leaves the rifle as a smooth cylinder coming to a sharp point at one end, not essentially different from the conventional rifle bullets in common use.

The terrific velocity of 5,000 feet a second, nearly double that of standard army rifles, gives the new weapon several advantages. It naturally flattens the line of flight or trajectory considerably, so that the soldier using it need not trouble himself so much about having the right elevation. It shortens the time of flight from rifle to target, a highly important matter for anti-aircraft machine gunners. Finally, it enables the small-caliber bullet to drive straight through tank armor, even without the advantage of special armor-piercing devices; for at such velocities even soft projectiles have no time to "upset" on striking a hard target—they act like the straws that get driven through boards in a tornado.

All these advantages must of course be purchased at a price. The rifle barrel, with its somewhat complicated bore, is more difficult to make, and more expensive. The ammunition is considerably costlier also, and its greater bulk in transportation is something of a military disadvantage. The recoil is heavier. Whether the rifle will wear out faster under firing conditions is not yet determined.

Nevertheless, if military authorities see sufficient tactical advantages in the new weapon, its final adoption may be expected.

Science News Letter, June 3, 1933

ENDOCRINOLOGY

Gland Secretion Rescues Children From Dwarfism

SIX CHILDREN and one young man of 18 years, doomed to be dwarfs, were rescued from this fate by treatment with a growth-stimulating hormone from the pituitary gland. Results of the successful treatment are reported by Drs. William Engelbach, R. L. Schaefer and W. L. Brosius of Detroit in *Endocrinology*. Only one other human subject is reported to have received this treatment, a patient of Dr. Engelbach who showed a favorable response.

The young people of the present report ranged in age from 7 to 18 years. They were from about two inches to more than a foot shorter than the shortest height normal for children of their ages. One seven-year-old girl was only one inch taller than her three-year-old sister.

Examinations showed that the growth deficiency was due to deficient functioning of the pituitary gland. Some of

the patients also showed signs of deficient thyroid gland activity.

The patients grew from one to 2.7 inches when given the growth-stimulating hormone three to five times a week for periods varying from three to five months. The young patients had all been under observation for several months prior to treatment, during which time six of them did not grow at all, while one grew half an inch.

The Detroit physicians make a special plea for early recognition and treatment of these cases. This will materially improve the chance for successful outcome of the treatment.

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MEDICINE

Hayfever Caused by Molds From Dust and Ringworm

MOLDS may cause hayfever and other nasal disturbances, Drs. Harry S. Bernton and Charles Thom of Washington have discovered.

Eight cases characterized by sneezing, running or stuffy noses were caused by sensitiveness to two species of molds, these scientists found. One of the molds, *Alternaria* by name, is commonly found in dust. The other, *Trychophyton,* is a common parasite of man and animals and produces ringworm of the scalp. Contact with persons who have ringworm or are otherwise infected with these parasites may cause hayfever in a sensitive person, it appears.

Fortunately, the sensitive individuals can be desensitized by suitable treatment, which relieves the symptoms. Six of the eight patients have been under treatment long enough to show permanent relief, Drs. Bernton and Thom reported to *The Journal of Allergy.*

Allergy is the name scientists have for the condition of sensitiveness to certain proteins, found in either food, plant pollens, or such substances as horse dander, cat hair or molds.

Asthma may also be caused by molds, earlier investigations of Dr. Bernton's showed.

The hayfever due to molds may appear at any season or in any locality. It is the hayfever due to plant pollens that causes summer sneezes and discomfort. One case of mold hayfever was seen in a boy who had been troubled with this ailment for a period of eight years in the West Indies, China, Japan, the Philippine and Hawaiian Islands, California and the District of Columbia.

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GENETICS

Genes Declared Impotent as Major Evolutionary Factors

THE THEORY of the gene, cornerstone of the present-day science of genetics, was attacked by Prof. William E. Castle of the Bussey Institute of Harvard University, in an address before the American Society of Mammalogists.

This theory, which holds that all inherited traits and qualities are controlled by the action of separate physical units of submicroscopic size borne in the chromosomes, Prof. Castle said failed to account for many observed facts about the way animals actually transmit in heredity. And present-day concepts in genetics, he continued, give us little help with the riddle of evolution.

"No genes are known," declared Prof. Castle, "which, by mutation, would change a rabbit into something different from a rabbit, which would take it out of its genus, or class, or phylum. Such mutations do not occur, and we know nothing about the inheritance of these more general features of organization, yet inherited features they certainly are. The current theory of the gene assumes that these characters, as well as the more special known unit-characters, are influenced by chromosomal genes. But this is purely speculative. No direct evidence can be cited in its support, for no crosses can be made between animals which have and those which have not these general characteristics, and that is the only method of Mendelian analysis.

"Genetics accordingly can not solve the problem of evolution, which involves changes in organization more general and fundamental in character—but probably slower and more gradual in becoming established—than those controlled by chromosomal genes."

Prof. Castle's special studies have been with rabbits. Of sixteen definitely traceable unit character differences in these animals, nine affect color and five the structure of the coat. Each of these effects is due to a different chromosomal gene; but gene mutations determine special and inconsequential properties, and have no effect on the rabbit as a species.

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BIOLOGY

Shipworms Proving Destructive to Rope

SHIPWORMS or teredos, a type of mollusks exceedingly destructive to pilings, boats and other wooden structures exposed to sea water, have developed a new and annoying appetite in Long Island Sound, Prof. W. R. Coe of Yale University reports in *Science.*

They have taken to boring in the stout ropes with which buoys and boats are moored, and have caused more than a little destruction and annoyance. Their greediness proves their own undoing, however, for as soon as they have riddled a rope to the point where it falls to pieces they are turned loose unsheltered in the sea, and so perish.

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